

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 3. (Cancelled)

4. (Currently Amended) ~~The detector as claimed in claim 3,~~ A detector for detecting at least one kind of address dependence between a first instruction and a second subsequent instruction executed by at least a processor, said detector comprising:

means for, if said at least one kind of address dependence is present in fact, detecting said presence in fact of said at least one kind of address dependence, and if said at least one kind of address dependence is not present in fact, detecting a pseudo presence of said at least one kind of address dependence; and

means for causing a recovery process to be executed by said processor when said processor executes said second instruction and either said means for detecting detects said presence in fact of said at least one kind of address dependence or said means for detecting detects said pseudo presence of said at least one kind of address dependence;

wherein said first instruction comprises a memory access instruction for access to a memory;

wherein said means for detecting comprises:

an execution history storing unit including a plurality of entries which stores an instruction execution information of whether said memory access instruction has been executed; and

an address converter for converting an address of said memory access instruction into an entry number of said plurality of entries of said execution history storing unit, so that said execution history storing unit stores said instruction execution information into an entry of said plurality of entries that is designated by said entry number; and

wherein said address converter is adopted to convert a-same addresses of different memory access instructions into-a-same entry numbers that are the same and said address converter may convert different addresses of different memory access instructions into entry

~~numbers that are the same for allowing that the same address for said different memory access instructions is stored in the same entry~~, whereby if said at least one kind of address dependence is not present in fact, then said ~~detector~~means for detecting may detect a pseudo presence of said at least one kind of address dependence.

5. (Original) The detector as claimed in claim 4, wherein said memory access instruction comprises either a load instruction or a store instruction.

6. (Previously Presented) The detector as claimed in claim 5, wherein said at least one kind of address dependence is a read after write dependence, and

said first instruction comprises a load instruction and if said load instruction has been executed, then said address converter is adopted to convert an address of said load instruction into a first entry number, and said detector stores a first instruction execution information, that said load instruction has been executed, into a first entry designated by said first entry number of said execution history storing unit, and

said second instruction comprises a store instruction and if said store instruction has been executed, then said address converter is adopted to convert an address of said store instruction into a second entry number, and said detector reads a second instruction execution information out from a second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence between said store instruction as executed and said load instruction as executed.

7. (Previously Presented) The detector as claimed in claim 5, wherein said at least one kind of address dependence is a write after read dependence, and

said first instruction comprises a store instruction and if said store instruction has been executed, then said address converter is adopted to convert an address of said store instruction into a first entry number, and said detector stores a first instruction execution information, that said store instruction has been executed, into a first entry designated by said first entry number of said execution history storing unit, and

said second instruction comprises a load instruction and if said load instruction has been executed, then said address converter is adopted to convert an address of said load instruction into a second entry number, and said detector reads a second instruction execution information out from a second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after read dependence between said load instruction as executed and said store instruction as executed.

8. (Previously Presented) The detector as claimed in claim 5, wherein said at least one kind of address dependence is a write after write dependence, and

said first instruction comprises a first store instruction and if said first store instruction has been executed, then said address converter is adopted to convert an address of said first store instruction into a first entry number, and said detector reads a first instruction execution information out from a first entry designated by said first entry number of said execution history storing unit, and also said detector stores a second instruction execution information, that said first store instruction has been executed, into said first entry designated by said first entry number of said execution history storing unit, and

said second instruction comprises a second store instruction and if said second store instruction has been executed, then said address converter is adopted to convert an address of said second store instruction into a second entry number, and said detector reads a third instruction execution information out from a second entry designated by said second entry number of said execution history storing unit, and also said detector stores a fourth instruction execution information, that said second store instruction has been executed, into said second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after write dependence between said first store instruction as executed and said second store instruction as executed.

9. (Previously Presented) The detector as claimed in claim 5, wherein said at least one kind of address dependence is a read after write dependence, a write after read dependence and a write after write dependence and

if a load instruction has been executed, then said address converter is adopted to convert an address of said load instruction into an entry number, and said detector reads an instruction execution information, whether or not said store instruction has been executed, from said entry designated by said entry number of said execution history storing unit, and also said detector stores an instruction execution information, that said load instruction has been executed, into said entry designated by said entry number of said execution history storing unit, and

if a store instruction has been executed, then said address converter is adopted to convert an address of said store instruction into an entry number, and said detector reads instruction execution information, whether or not said load instruction has been executed and whether or not said store instruction has been executed, out from said entry designated by said entry number of said execution history storing unit, and also said detector stores an instruction execution information, that said store instruction has been executed into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from said store instruction as executed into said load instruction as executed, and also detects a possibility of presence of said write after read dependence from said load instruction as executed into said store instruction as executed as well as detects a possibility of presence of said write after write dependence between said store instructions as executed.

10. (Original) The detector as claimed in claim 4, wherein said address converter is adopted to select plural bits of said address inputted and output said plural bits as indicating said entry number.

11. (Original) The detector as claimed in claim 10, wherein said address converter is adopted to take an exclusive-OR of said selected plural bits and output a value of said exclusive-OR as indicating said entry number.

12. – 14. (Cancelled)

15. (Currently Amended) ~~The detector as claimed in claim 14,~~ A detector provided in a self-processor included in a multiple processor system including said self-processor and at least a processor other than said self-processor, and said multiple processor system performing parallel processings in thread units of program, and said detector detecting at least one kind of dependence in address between an instruction included in a thread executed by said self-processor and an instruction included in a thread executed by said other processor, said detector being adopted to detect a possibility of presence of said at least one kind of dependence, said detector comprising:

means for, if said at least one kind of dependence in address between said instruction included in said thread executed by said self-processor and said instruction included in said thread executed by said other processor is present in fact, detecting said presence in fact of said at least one kind of dependence, and if said at least one kind of dependence in address between said instruction included in said thread executed by said self-processor and said instruction included in said thread executed by said other processor is not present in fact, detecting a pseudo presence of said at least one kind of dependence;

wherein said instruction included in said thread executed by said self-processor comprises a memory access instruction for access to a memory;

wherein said means for detecting comprises:

an execution history storing unit including a plurality of entries which stores an instruction execution information of whether said memory access instruction has been executed; and

an address converter for converting an address of said memory access instruction into an entry number of said plurality of entries of said execution history storing unit, so that said execution history storing unit stores said instruction execution information into an entry of said plurality of entries that is designated by said entry number; and

wherein said address converter is adopted to convert a-same addresses of different memory access instructions into-a-same entry numbers that are the same and said address converter may convert different addresses of different memory access instructions into entry numbers that are the same ~~for allowing that the same address for said different memory access instructions is stored in the same entry,~~ whereby if said at least one kind of dependence is not

present in fact, then said ~~detector~~means for detecting may detect a pseudo presence of said at least one kind of dependence.

16. (Currently Amended) The detector as claimed in claim 15, wherein only if ~~said memory access instruction has been executed by other processor than said self-processor, and said thread executed by said other processor is to execute a thread which~~ is prior in program sequence to said thread executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said memory access instruction into ~~an~~said entry number of said entry, and said ~~detector~~means for detecting reads an instruction execution information that is stored in said entry of said execution history storing unit, whether to determine whether or not ~~said a second memory accesses instruction has been executed, from an entry designated by said entry number by said other processor with a second address that has been converted to a second entry number that is the same as said entry number.~~

17. (Original) The detector as claimed in claim 15, wherein if said memory access instruction has been executed by other processor than said self-processor, then said address converter is adopted to convert an address of said memory access instruction into an entry number of said entry, and said detector reads an instruction execution information, whether or not said memory accesses instruction has been executed, from an entry designated by said entry number by referring only a value which has been read out by said memory access instruction which had been executed by other processor executing a thread which is prior in program sequence to said thread executed by said self-processor.

18. (Original) The detector as claimed in claim 15, wherein said memory access instruction comprises either a load instruction or a store instruction.

19. (Currently Amended) The detector as claimed in claim 18, wherein said one kind of said dependence is a read after write dependence, ~~and~~

wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said load instruction into ~~an~~said entry number, and said detector stores ~~an~~said instruction execution information, that said load

instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if ~~said~~ store instruction has been executed by said other processor, then said address converter is adopted to convert ~~ana~~ store address of said store instruction into ~~ana~~ second entry number, and said detector reads ~~ana~~ second instruction execution information, ~~whether or not said load instruction has been executed by said self-processor~~, out from ~~said~~ second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from said store instruction as executed by said other processor into said load instruction as executed by said self-processor.

20. (Currently Amended) The detector as claimed in claim 18, wherein said one kind of said dependence is a write after read dependence, ~~and~~

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said store instruction into ~~ansaid~~ entry number, and said detector stores ~~ansaid~~ instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if ~~said~~ load instruction has been executed by said other processor, then said address converter is adopted to convert ~~ana~~ load address of said load instruction into ~~ana~~ second entry number, and said detector reads ~~ana~~ second instruction execution information, ~~whether or not said store instruction has been executed by said self-processor~~, out from ~~said~~ second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after read dependence from said load instruction as executed by said other processor into said store instruction as executed by said self-processor.

21. (Currently Amended) The detector as claimed in claim 18, wherein said one kind of said dependence is an write after write dependence, ~~and~~

wherein if ~~said~~ store instruction has been executed by said other processor, then said address converter is adopted to convert ~~ana~~ store address of said store instruction executed by

said other processor into ana second entry number, and said detector reads ana second instruction execution information, ~~whether or not said store instruction has been executed by said self processor~~, out from saida second entry designated by said second entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ansaid address of said store instruction into ansaid entry number, and said detector stores ansaid instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after write dependence from said store instruction as executed by said other processor to said store instruction as executed by said self-processor.

22. (Currently Amended) The detector as claimed in claim 18, wherein said one kind of said dependence is a read after write dependence, a write after read dependence and an write after write dependence and

wherein if saida load instruction has been executed by said other processor, then said address converter is adopted to convert ana load address of said load instruction executed by said other processor into ana second entry number, and said detector reads ana second instruction execution information, ~~whether or not said store instruction has been executed by said self processor~~, from saida second entry designated by said second entry number of said execution history storing unit,

wherein if saida store instruction has been executed by said other processor, then said address converter is adopted to convert ana store address of said store instruction executed by said other processor into ana third entry number, and said detector reads ana third instruction execution information, ~~whether or not said load instruction has been executed by said self processor~~, from saida third entry designated by said third entry number of said execution history storing unit,

wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ansaid address of said load instruction into ansaid entry number, and said detector stores ansaid instruction execution information, that said load

instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said store instruction into ~~an~~said entry number, and said detector stores ~~an~~said instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from said store instruction as executed by said other processor into said load instruction as executed by said self-processor, and also detects a possibility of presence of said write after read dependence from said load instruction as executed by said other processor into said store instruction as executed by said self-processor as well as detects a possibility of presence of said write after write dependence from said store instruction as executed by said other processor into said store instruction as executed by said self-processor.

23. (Currently Amended) The detector as claimed in claim ~~13~~15, wherein said address converter is adopted to select plural bits of said address inputted and output said plural bits as indicating said entry number.

24. (Original) The detector as claimed in claim 23, wherein said address converter is adopted to take an exclusive-OR of said selected plural bits and output a value of said exclusive-OR as indicating said entry number.

25. – 27. (Cancelled)

28. (Currently Amended) ~~The detector as claimed in claim 27,~~ A detector provided in a self-processor included in a multiple processor system including said self-processor and at least a processor other than said self-processor, and said multiple processor system performing parallel processings in thread units of program, and said detector detecting at least one kind of dependence in address between an instruction included in a thread executed by said self-processor and an instruction included in a thread executed by said other processor, said

detector being adopted to detect a possibility of presence of said at least one kind of dependence, as well as said detector detecting at least one kind of dependence in address between instructions included in said thread executed by said self-processor, said detector comprising:

means for, if said at least one kind of dependence in address between said instruction included in said thread executed by said self-processor and said instruction included in said thread executed by said other processor as well as between instructions included in said thread executed by said self-processor is present in fact, detecting said presence in fact of said at least one kind of dependence, and if said at least one kind of dependence in address between said instruction included in said thread executed by said self-processor and said instruction included in said thread executed by said other processor as well as between instructions included in said thread executed by said self-processor is not present in fact, detecting a pseudo presence of said at least one kind of dependence;

wherein said instruction included in said thread executed by said self-processor comprises a memory access instruction for access to a memory;

wherein said means for detecting comprises:

an execution history storing unit including a plurality of entries which stores an instruction execution information of whether said memory access instruction has been executed; and

an address converter for converting an address of said memory access instruction into an entry number of said plurality of entries of said execution history storing unit, so that said execution history storing unit stores said instruction execution information into an entry of said plurality of entries that is designated by said entry number; and

wherein said address converter is adopted to convert a-same addresses of different memory access instructions into-a same entry numbers that are the same and said address converter may convert different addresses of different memory access instructions into entry numbers that are the same for allowing that the same address for said different memory access instructions is stored in the same entry, whereby if said at least one kind of dependence is not present in fact, then said ~~detector~~ means for detecting may detect a pseudo presence of said at least one kind of dependence.

29. (Currently Amended) The detector as claimed in claim 28, wherein only if ~~said memory access instruction has been executed by other processor than said self-processor, and said thread executed by said~~ other processor ~~is to execute a thread which~~ is prior in program sequence to said thread executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said memory access instruction into ~~ansaid~~ entry number of ~~said entry~~, and said detector ~~means for detecting reads ana stored~~ instruction execution information from said entry of said execution history storing unit, whether to determine whether or not said a second memory accesses instruction has been executed, from an entry designated by said entry number by said other processor with a second address that has been converted into a second entry number that is the same as said entry number.

30. (Original) The detector as claimed in claim 28, wherein if said memory access instruction has been executed by other processor than said self-processor, then said address converter is adopted to convert an address of said memory access instruction into an entry number of said entry, and said detector reads an instruction execution information, whether or not said memory accesses instruction has been executed, from an entry designated by said entry number by referring only a value which has been read out by said memory access instruction which had been executed by other processor executing a thread which is prior in program sequence to said thread executed by said self-processor.

31. (Currently Amended) The detector as claimed in claim 30, wherein said one kind of said dependence is a read after write dependence, and said memory access instruction comprises either a load instruction or a store instruction,

wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said load instruction into ~~ansaid~~ entry number, and said detector stores ~~ansaid~~ instruction execution information, that said load instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if ~~said a particular~~ store instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~ana store~~ address of said particular store instruction into ~~ana second~~ entry number, and said detector

reads ~~ana second~~ instruction execution information, ~~whether or not said load instruction has been executed by said self-proeessor~~, out from ~~saida second~~ entry designated by said ~~second~~ entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from ~~said-store instructions~~ as executed by either said self-processor or said other processor into ~~said-load instructions~~ as executed by said self-processor.

32. (Currently Amended) The detector as claimed in claim 30, wherein said one kind of said dependence is a write after read dependence, and said memory access instruction comprises either a load instruction or a store instruction,

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said store instruction into ~~ansaid~~ entry number, and said detector stores ~~ansaid~~ instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if ~~saida particular~~ load instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~ana load~~ address of said ~~particular~~ load instruction into ~~ana second~~ entry number, and said detector reads ~~ana second~~ instruction execution information, ~~whether or not said store instruction has been executed by said self-processor~~, out from ~~saida second~~ entry designated by said ~~second~~ entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after read dependence from ~~said-load instructions~~ as executed by either said self-processor or said other processor into ~~said-store instructions~~ as executed by said self-processor.

33. (Currently Amended) The detector as claimed in claim 30, wherein said one kind of said dependence is an write after write dependence, and said memory access instruction comprises either a load instruction or a store instruction,

wherein if ~~saida particular~~ store instruction has been executed by said other processor, then said address converter is adopted to convert ~~ana store~~ address of said ~~particular~~ store instruction into ~~ana second~~ entry number, and said detector reads ~~ana second~~ instruction

execution information, ~~whether or not said store instruction has been executed by said self-processor,~~ out from ~~said~~ a second entry designated by said second entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~anaid~~ ansaid address of said store instruction into ~~anaid~~ ansaid entry number, and said detector reads ~~ana stored~~ ana stored instruction execution information, ~~whether or not said store instruction has been executed by said self-processor,~~ out from said entry designated by said entry number of said execution history storing unit, as well as said detector stores ~~anaid~~ ansaid instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after write dependence from ~~said-store instructions~~ said-store instructions as executed by either said self-processor or said other processor to ~~said-store instructions~~ said-store instructions as executed by said self-processor.

34. (Currently Amended) The detector as claimed in claim 30, wherein said one kind of said dependence is a read after write dependence, a write after read dependence and an write after write dependence, and said memory access instruction comprises either a load instruction or a store instruction,

wherein if ~~said~~ a particular load instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~ana load~~ ana load address of said particular load instruction into ~~ana second~~ ana second entry number, and said detector reads ~~ana second~~ ana second instruction execution information, ~~whether or not said store instruction has been executed by said self-processor,~~ from ~~said~~ a second entry designated by said second entry number of said execution history storing unit,

wherein if ~~said~~ a particular store instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~ana store~~ ana store address of said store instruction into ~~ana third~~ ana third entry number, and said detector reads ~~ana third~~ ana third instruction execution information, ~~whether or not said load instruction has been executed by said self-processor,~~ from ~~said~~ a third entry designated by said third entry number of said execution history storing unit,

wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said load instruction into ~~ansaid~~ entry number, and said detector stores ~~ansaid~~ instruction execution information, that said load instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said store instruction into ~~ansaid~~ entry number, and said detector stores ~~ansaid~~ instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from ~~said-store instructions~~ as executed by either said self-processor or said other processor into ~~said-load instructions~~ as executed by said self-processor, and also detects a possibility of presence of said write after read dependence from ~~said-load instructions~~ as executed by either said self-processor or said other processor into ~~said-store instructions~~ as executed by said self-processor as well as detects a possibility of presence of said write after write dependence from ~~said-store instructions~~ as executed by either said self-processor or said other processor into ~~said-store instructions~~ as executed by said self-processor.

35. (Currently Amended) The detector as claimed in claim ~~26~~28, wherein said address converter is adopted to select plural bits of said address inputted and output said plural bits as indicating said entry number.

36. (Original) The detector as claimed in claim 35, wherein said address converter is adopted to take an exclusive-OR of said selected plural bits and output a value of said exclusive-OR as indicating said entry number.

37. (Withdrawn) A processor including:

- an instruction execution unit;
- a processor control unit; and
- a data dependence detector,

wherein for allowing said processor to execute said instructions, said processor control unit supplies a kind of said instruction to said instruction execution unit and said data dependence detector, and if said instruction to be executed is a memory access instruction which comprises either a load instruction for transferring data from a memory to a register or a store instruction for transferring data from said register to said memory, then said processor control unit supplies an address of said memory access instruction to said instruction execution unit and said data dependence detector as well as said processor control unit supplies said data dependence detector with a speculative execution flag which indicates that said memory access instruction is to be executed by a data dependence speculative execution, and

said data dependence detector further includes:

an execution history storing unit including a plurality of entry which stores an instruction execution information of whether said memory access instruction has been executed; and

an address converter for converting an address of said memory access instruction into an entry number of said entry of said execution history storing unit, so that said execution history storing unit refers said speculative execution flag and an execution instruction from said processor control unit, and allows read/write operation of said instruction execution information to said entry designated by said entry number, and

said data dependence detector supplies said processor control unit with a value which indicates whether said data dependence execution has been in success or failure.

38. (Withdrawn) The processor as claimed in claim 37, wherein said address converter is adopted to convert a same address of different memory access instructions into a same entry number for allowing that the same address for said different memory access instructions is stored in the same entry, whereby if said at least one kind of dependence is not present in fact, then said detector is adopted to detect said at least one kind of dependence.

39. (Withdrawn) The processor as claimed in claim 38, wherein said address converter is adopted to select plural bits of said address inputted and output said plural bits as indicating said entry number.

40. (Withdrawn) The processor as claimed in claim 39, wherein said address converter is adopted to take an exclusive-OR of said selected plural bits and output a value of said exclusive-OR as indicating said entry number.

41. (Withdrawn) The processor as claimed in claim 37, wherein in case that said processor is in a state of a speculative instruction execution to said data dependence, and

if said processor has speculatively executed said load instruction, then said address converter converts said address of said load instruction into an entry number which is inputted into said instruction history storing unit, and

said instruction history storing unit stores a value, which indicates that said load instruction has speculatively executed, into an entry designated by said entry number, and

if said processor has speculatively executed said store instruction, then said address converter converts said address of said store instruction into an entry number which is inputted into said instruction history storing unit, and

said instruction history storing unit reads a stored value out from an entry designated by said entry number,

whereby said data dependence detector detects, based on said read out value, a possibility of presence of a read after write dependence from said store instruction from said load instruction, and if said possibility of presence of said read after write dependence is detected, said data dependence detector supplies said processor control unit with a value which indicates that said data dependence speculative execution has been in failure.

42. (Withdrawn) The processor as claimed in claim 40, wherein said data dependence detector initializes all of said entries of said instruction history storing unit based on said speculative execution flag.

43. (Withdrawn) The processor as claimed in claim 40, wherein if said data dependence detector supplies said processor control unit with a value which indicates that said data dependence speculative execution has been in failure, said processor control unit and said

instruction execution unit perform a recovery process for failure of said data dependence speculative execution.

44. (Withdrawn) The processor as claimed in claim 40, wherein if no presence of said read after write dependence from said store instruction to said load instruction is detected, then said data dependence detector supplies said processor control unit with a value which indicates that said data dependence speculative execution has been in success, said processor control unit continues subsequent instruction executions without execution of a recovery process.

45. (Withdrawn) A multiple processor system for thread parallel processings, said system including:

a plurality of processor which further includes an instruction execution unit ; a processor control unit ; and a data dependence detector; and

a thread control unit being adopted to allocate threads to said plurality of processor for allowing each of said plurality of processor to execute at least an allocated thread, and said thread control unit being also adopted to supply each of said plurality of processor with both a respective speculative execution flag which indicate whether or not said thread should be executed by a data dependence speculative execution, and a thread sequence which indicates execution sequences of said threads, whereby each of said processors receives said speculative execution flag and said thread sequences and executes said at least allocated thread allocated by said thread control unit,

wherein said processor control unit supplies a kind of an instruction to be executed by a self-processor, in which said processor control unit is provided, to said instruction execution unit and said data dependence detector which are provided in said self-processor, and as well as to at least a processor other than said self-processor,

said data dependence detector receives said kind of said instruction to be executed by said self-processor, and also receives kinds of instructions to be executed by said other processor from processor control units provided in said other processor;

if said instruction to be executed is either a load instruction or a store instruction, said processor control unit supplies an address of said instruction to said instruction execution unit

and said data dependence detector which are provided in said self-processor, and as well as to said other processor;

said data dependence detector includes the same number of address converter as a total number of said processors included in said system, an instruction history storing unit and a logic circuit;

said data dependence detector judges whether said self-processor is in a definitive execution state or a speculative execution state based on said speculative execution flag supplied from said thread control unit;

said data dependence detector judges, whether said thread executed by said self-processor is prior in program sequence to a respective thread executed by said other processor, based on said thread sequences, and said data dependence detector supplies a data dependence detected result to said thread control unit;

one of said address converters converts an address of a load instruction to be executed by said self-processor into an entry number of said instruction history storing unit, and remaining of said address converters converts an address of a store instruction to be executed by said other processor into an entry number of said instruction history storing unit;

said instruction history storing unit comprises a plurality of entry, a single write port and plural read ports which number is smaller by one than said total number of said processors;

said address converter, which has an input port for receiving said address of said instruction to be executed by said self-processor, has an output port connected to said write port of said instruction history storing unit for write operation into an entry designated by said entry number of said instruction history storing unit;

said address converter, which has an input port for receiving said address of said instruction to be executed by said other processor, has an output port connected to said read port of said instruction history storing unit for read operation from an entry designated by said entry number of said instruction history storing unit; and

said logic circuit operates a logical-OR of said plural read ports of said address converter and supplies an operated logic value as a data dependence detected result to said thread control unit.

46. (Withdrawn) The system as claimed in claim 45, wherein said data dependence detector initializes all of said entries of said instruction history storing unit based on said speculative execution flag.

47. (Withdrawn) The system as claimed in claim 45, wherein if said self-processor is in said speculative execution state and said load instruction has speculatively been executed by said self-processor, then said address converter in said data dependence detector converts an address of said load instruction into an entry number of said instruction history storing unit and supplies said entry number to said write port of said instruction history storing unit, so that said instruction history storing unit sets a value indicating, that said load instruction has speculatively been executed, at an entry designated by said entry number,

if said self-processor is in said speculative execution state and said store instruction has been executed by other processor which is allocated with a prior thread which is prior in program sequence to a thread executed by said self-processor, then said address converter in said data dependence detector converts an address of said store instruction into an entry number of said instruction history storing unit and supplies said entry number to corresponding one of said input ports of said instruction history storing unit, so that said instruction history storing unit reads a content from an entry designated by said entry number and supplies said content to said logic circuit,

said logic circuit operates a logical-OR of said plural read ports of said address converter and supplies an operated logic value as a data dependence detected result to said thread control unit.

48. (Withdrawn) The system as claimed in claim 45, wherein if an address of a store instruction executed by other processor allocated with a prior thread which is prior in program sequence to a thread executed by said self-processor is either equal to an address of a load instruction subjected to a data dependence speculative execution by said self-processor or allocated to the same entry of said instruction history storing unit due to appearance of areas, then a value indicating, that said load instruction subjected to the data dependence speculative execution is present, is read out from said instruction history storing unit, a possibility of presence of a read after write dependence is detected, and said data dependence detector

supplies a value indicating failure of said data dependence speculative execution to said thread control unit,

said thread control unit receives a notice of failure of said data dependence speculative execution from either one of said processors, and said thread control unit sends a request for recovery process against failure of said data dependence speculative execution to a processor which has supplied said notice of failure of said data dependence speculative execution as well as to a processor executing a thread which is post in program sequence to a thread executed by said processor which has supplied said notice, and

said processor control unit of said processor receives said request for said recovery process to failure of said data dependence speculative execution.

49. – 51. (Cancelled)

52. (Currently Amended) ~~The semiconductor integrated circuit as claimed in claim 51, A~~
semiconductor integrated circuit including a detector for detecting at least one kind of
dependence in address between instructions executed by at least a processor, said detector
being adopted to detect a possibility of presence of said at least one kind of dependence, said
detector comprising:

means for, if said at least one kind of dependence is present in fact, detecting said
presence in fact of said at least one kind of dependence, and if said at least one kind of
dependence is not present in fact, detecting a pseudo presence of said at least one kind of
dependence; and

means for causing a recovery process to be executed by said processor when at least
one of said instructions executed by said processor is executed and either said presence in fact
or said pseudo presence of said at least one kind of dependence has been detected;

wherein at least one of said instructions comprises a memory access instruction for
access to a memory;

wherein said means for detecting comprises:

an execution history storing unit including a plurality of entries which stores
an instruction execution information of whether said memory access instruction has been
executed; and

an address converter for converting an address of said memory access instruction into an entry number of said plurality of entries of said execution history storing unit, so that said execution history storing unit stores said instruction execution information into an entry of said plurality of entries that is designated by said entry number; and

wherein said address converter is adopted to convert a same addresses of different memory access instructions into a same entry numbers that are the same and said address converter may convert different addresses of different memory access instructions into entry numbers that are the same ~~for allowing that the same address for said different memory access instructions is stored in the same entry,~~ whereby if said at least one kind of dependence is not present in fact, then said ~~detector~~ means for detecting may detect a pseudo presence of said at least one kind of dependence.

53. (Original) The semiconductor integrated circuit as claimed in claim 52, wherein said memory access instruction comprises either a load instruction or a store instruction.

54. (Currently Amended) The semiconductor integrated circuit as claimed in claim 53, wherein said one kind of said dependence is a read after write dependence, ~~and~~

wherein if said load instruction has been executed, then said address converter is adopted to convert ansaid address of said load instruction into ansaid entry number, and said detector stores ansaid instruction execution information, that said load instruction has been executed, into said entry designated by said entry number of said execution history storing unit, and

wherein if said store instruction has been executed, then said address converter is adopted to convert ansaid address of said store instruction into ansaid entry number, and said detector reads ana stored instruction execution information, ~~whether or not said load instruction has been executed,~~ out from said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from said-store instructions as executed into said-load instructions as executed.

55. (Currently Amended) The semiconductor integrated circuit as claimed in claim 53, wherein said one kind of said dependence is a write after read dependence,~~and~~

wherein if said store instruction has been executed, then said address converter is adopted to convert ~~an~~said address of said store instruction into ~~an~~said entry number, and said detector stores ~~an~~said instruction execution information, that said store instruction has been executed, into said entry designated by said entry number of said execution history storing unit, and

wherein if said load instruction has been executed, then said address converter is adopted to convert ~~an~~said address of said load instruction into ~~an~~said entry number, and said detector reads ~~an~~a stored instruction execution information,~~whether or not said store instruction has been executed,~~ out from said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after read dependence from ~~said~~ load instructions as executed into ~~said~~ store instructions as executed.

56. (Currently Amended) The semiconductor integrated circuit as claimed in claim 53, wherein said one kind of said dependence is an write after write dependence,~~and~~

wherein if said store instruction has been executed, then said address converter is adopted to convert ~~an~~said address of said store instruction into ~~an~~said entry number, and said detector reads ~~an~~a stored instruction execution information,~~whether or not said store instruction has been executed,~~ out from said entry designated by said entry number of said execution history storing unit, and also said detector stores ~~an~~said instruction execution information, that said store instruction has been executed, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after write dependence between ~~said~~ store instructions as executed.

57. (Currently Amended) The semiconductor integrated circuit as claimed in claim 53, wherein said one kind of said dependence is a read after write dependence, a write after read dependence and an write after write dependence,~~and~~

wherein if said load instruction has been executed, then said address converter is adopted to convert ~~an~~said address of said load instruction into ~~an~~said entry number, and said detector reads ~~an~~a stored instruction execution information, ~~whether or not said store instruction has been executed,~~ from said entry designated by said entry number of said execution history storing unit, and also said detector stores ~~an~~said instruction execution information, that said load instruction has been executed, into said entry designated by said entry number of said execution history storing unit, and

wherein if said store instruction has been executed, then said address converter is adopted to convert ~~an~~said address of said store instruction into ~~an~~said entry number, and said detector reads a stored instruction execution informations, ~~whether or not said load instruction has been executed and whether or not said store instruction has been executed,~~ out from said entry designated by said entry number of said execution history storing unit, and also said detector stores ~~an~~said instruction execution information, that said store instruction has been executed into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from ~~said~~ store instructions as executed into ~~said~~ load instructions as executed, and also detects a possibility of presence of said write after read dependence from ~~said~~ load instructions as executed into ~~said~~ store instructions as executed as well as detects a possibility of presence of said write after write dependence between ~~said~~ store instructions as executed.

58. (Original) The semiconductor integrated circuit as claimed in claim 52, wherein said address converter is adopted to select plural bits of said address inputted and output said plural bits as indicating said entry number.

59. (Original) The semiconductor integrated circuit as claimed in claim 58, wherein said address converter is adopted to take an exclusive-OR of said selected plural bits and output a value of said exclusive-OR as indicating said entry number.

60. – 62. (Cancelled)

63. (Currently Amended) ~~The semiconductor integrated circuit as claimed in claim 62, A~~
semiconductor integrated circuit including a detector provided in a self-processor included in
a multiple processor system including said self-processor and at least a processor other than
said self-processor, and said multiple processor system performing parallel processings in
thread units of program, and said detector detecting at least one kind of dependence in address
between an instruction included in a thread executed by said self-processor and an instruction
included in a thread executed by said other processor, said detector being adopted to detect a
possibility of presence of said at least one kind of dependence, said detector comprising:

means for, if said at least one kind of dependence in address between said instruction
included in said thread executed by said self-processor and said instruction included in said
thread executed by said other processor is present in fact, detecting said presence in fact of
said at least one kind of dependence, and if said at least one kind of dependence in address
between said instruction included in said thread executed by said self-processor and said
instruction included in said thread executed by said other processor is not present in fact,
detecting a pseudo presence of said at least one kind of dependence;

wherein said instruction included in said thread executed by said self-processor
comprises a memory access instruction for access to a memory;

wherein said means for detecting comprises:

an execution history storing unit including a plurality of entries which stores
an instruction execution information of whether said memory access instruction has been
executed; and

an address converter for converting an address of said memory access
instruction into an entry number of said plurality of entries of said execution history storing
unit, so that said execution history storing unit stores said instruction execution information
into an entry of said plurality of entries that is designated by said entry number; and

wherein said address converter is adopted to convert a-same addresses of different
memory access instructions into-a-same entry numbers that are the same and said address
converter may convert different addresses of different memory access instructions into entry
numbers that are the same for allowing that the same address for said different memory access
instructions is stored in the same entry, whereby if said at least one kind of dependence is not

present in fact, then said ~~detector~~means for detecting may detect a pseudo presence of said at least one kind of dependence.

64. (Currently Amended) The semiconductor integrated circuit as claimed in claim 63, wherein only if ~~said memory access instruction has been executed by other processor than said self-processor, and said~~ thread executed by said other processor ~~is to execute a thread~~ which is prior in program sequence to said thread executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said memory access instruction into an~~said~~ entry number ~~of said entry~~, and said ~~detector~~means for detecting reads ~~an~~ a stored instruction execution information, ~~whether or not said memory accesses instruction has been executed,~~ from an~~said~~ entry designated by said entry number.

65. (Original) The semiconductor integrated circuit as claimed in claim 63, wherein if said memory access instruction has been executed by other processor than said self-processor, then said address converter is adopted to convert an address of said memory access instruction into an entry number of said entry, and said detector reads an instruction execution information, whether or not said memory accesses instruction has been executed, from an entry designated by said entry number by referring only a value which has been read out by said memory access instruction which had been executed by other processor executing a thread which is prior in program sequence to said thread executed by said self-processor.

66. (Original) The semiconductor integrated circuit as claimed in claim 63, wherein said memory access instruction comprises either a load instruction or a store instruction.

67. (Currently Amended) The semiconductor integrated circuit as claimed in claim 66, wherein said one kind of said dependence is a read after write dependence, ~~and~~ wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said load instruction into an~~said~~ entry number, and said detector stores ~~an~~said instruction execution information, that said load instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if ~~said~~ a particular store instruction has been executed by said other processor, then said address converter is adopted to convert ~~an~~ a store address of said particular store instruction into ~~an~~ a second entry number, and said detector reads ~~an~~ a stored instruction execution information, ~~whether or not said load instruction has been executed by said self-processor,~~ out from ~~said~~ a second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from ~~said~~ store instructions as executed by said other processor into ~~said~~ load instructions as executed by said self-processor.

68. (Currently Amended) The semiconductor integrated circuit as claimed in claim 66, wherein said one kind of said dependence is a write after read dependence, ~~and~~

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~ said address of said store instruction into ~~an~~ said entry number, and said detector stores ~~an~~ said instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if ~~said~~ a particular load instruction has been executed by said other processor, then said address converter is adopted to convert ~~an~~ a load address of said particular load instruction into ~~an~~ a second entry number, and said detector reads ~~an~~ a second instruction execution information, ~~whether or not said store instruction has been executed by said self-processor,~~ out from ~~said~~ a second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after read dependence from ~~said~~ load instructions as executed by said other processor into ~~said~~ store instructions as executed by said self-processor.

69. (Currently Amended) The semiconductor integrated circuit as claimed in claim 66, wherein said one kind of said dependence is an write after write dependence, ~~and~~

wherein if ~~said~~ a particular store instruction has been executed by said other processor, then said address converter is adopted to convert ~~an~~ a store address of said store instruction

into ~~ana~~ second entry number, and said detector reads ~~ana~~ second instruction execution information, ~~whether or not said store instruction has been executed by said self-processor,~~
out from ~~said~~ a second entry designated by said second entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ana~~ said address of said store instruction into ~~ana~~ said entry number, and said detector stores ~~ana~~ said instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after write dependence from ~~said~~ store instructions as executed by said other processor to ~~said~~ store instructions as executed by said self-processor.

70. (Currently Amended) The semiconductor integrated circuit as claimed in claim 66, wherein said one kind of said dependence is a read after write dependence, a write after read dependence and an write after write dependence, ~~and~~

wherein if ~~said~~ a particular load instruction has been executed by said other processor, then said address converter is adopted to convert ~~ana~~ load address of said particular load instruction into ~~ana~~ second entry number, and said detector reads ~~ana~~ second instruction execution information, ~~whether or not said store instruction has been executed by said self-processor,~~
from ~~said~~ a second entry designated by said second entry number of said execution history storing unit,

wherein if ~~said~~ a particular store instruction has been executed by said other processor, then said address converter is adopted to convert ~~ana~~ store address of said particular store instruction into ~~ana~~ third entry number, and said detector reads ~~ana~~ third instruction execution information, ~~whether or not said load instruction has been executed by said self-processor,~~
from ~~said~~ a third entry designated by said third entry number of said execution history storing unit,

wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ana~~ said address of said load instruction into ~~ana~~ said entry number, and said detector stores ~~ana~~ said instruction execution information, that said load

instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said store instruction into ~~an~~said entry number, and said detector stores ~~an~~said instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from ~~said~~-store instructions as executed by said other processor into ~~said~~-load instructions as executed by said self-processor, and also detects a possibility of presence of said write after read dependence from ~~said~~-load instructions as executed by said other processor into ~~said~~-store instructions as executed by said self-processor as well as detects a possibility of presence of said write after write dependence from ~~said~~-store instructions as executed by said other processor into ~~said~~-store instructions as executed by said self-processor.

71. (Currently Amended) The semiconductor integrated circuit as claimed in claim ~~64~~63, wherein said address converter is adopted to select plural bits of said address inputted and output said plural bits as indicating said entry number.

72. (Original) The semiconductor integrated circuit as claimed in claim 71, wherein said address converter is adopted to take an exclusive-OR of said selected plural bits and output a value of said exclusive-OR as indicating said entry number.

73. – 75. (Cancelled)

76. (Currently Amended) ~~The semiconductor integrated circuit as claimed in claim 75, A~~
semiconductor integrated circuit including a detector provided in a self-processor included in
a multiple processor system including said self-processor and at least a processor other than
said self-processor, and said multiple processor system performing parallel processings in
thread units of program, and said detector detecting at least one kind of dependence in address

between an instruction included in a thread executed by said self-processor and an instruction included in a thread executed by said other processor, said detector being adopted to detect a possibility of presence of said at least one kind of dependence, as well as said detector detecting at least one kind of dependence in address between instructions included in a thread executed by said self-processor, said detector comprising:

means for, if said at least one kind of dependence in address between said instruction included in said thread executed by said self-processor and said instruction included in said thread executed by said other processor as well as between instructions included in said thread executed by said self-processor is present in fact, detecting said presence in fact of said at least one kind of dependence, and if said at least one kind of dependence in address between said instruction included in said thread executed by said self-processor and said instruction included in said thread executed by said other processor as well as between instructions included in said thread executed by said self-processor is not present in fact, detecting a pseudo presence of said at least one kind of dependence;

wherein said instruction included in said thread executed by said self-processor comprises a memory access instruction for access to a memory;

wherein said means for detecting comprises:

an execution history storing unit including a plurality of entries which stores an instruction execution information of whether said memory access instruction has been executed; and

an address converter for converting an address of said memory access instruction into an entry number of said plurality of entries of said execution history storing unit, so that said execution history storing unit stores said instruction execution information into an entry of said plurality of entries that is designated by said entry number; and

wherein said address converter is adopted to convert a same addresses of different memory access instructions into a same entry numbers that are the same and said address converter may convert different addresses of different memory access instructions into entry numbers that are the same for allowing that the same address for said different memory access instructions is stored in the same entry, whereby if said at least one kind of dependence is not present in fact, then said ~~detector~~ means for detecting may detect a pseudo presence of said at least one kind of dependence.

77. (Currently Amended) The semiconductor integrated circuit as claimed in claim 76, wherein only if ~~said memory access instruction has been executed by other processor than said self-processor, and said thread executed by said~~ other processor is ~~to execute a thread~~ which is prior in program sequence to said thread executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said memory access instruction into ~~ansaid~~ entry number of said entry, and said ~~detector~~means for detecting reads ~~ana~~ stored instruction execution information, ~~whether or not said memory accesses instruction has been executed,~~ from an entry designated by said entry number.

78. (Original) The semiconductor integrated circuit as claimed in claim 76, wherein if said memory access instruction has been executed by other processor than said self-processor, then said address converter is adopted to convert an address of said memory access instruction into an entry number of said entry, and said detector reads an instruction execution information, whether or not said memory accesses instruction has been executed, from an entry designated by said entry number by referring only a value which has been read out by said memory access instruction which had been executed by other processor executing a thread which is prior in program sequence to said thread executed by said self-processor.

79. (Original) The semiconductor integrated circuit as claimed in claim 76, wherein said memory access instruction comprises either a load instruction or a store instruction.

80. (Currently Amended) The semiconductor integrated circuit as claimed in claim 79, wherein said one kind of said dependence is a read after write dependence, ~~and~~
wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ansaid~~ address of said load instruction into ~~ansaid~~ entry number, and said detector stores ~~ansaid~~ instruction execution information, that said load instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if ~~said~~ a particular store instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~ana~~ store

address of said particular store instruction into ~~ana~~ a second entry number, and said detector reads ~~ana stored~~ instruction execution information, ~~whether or not said load instruction has been executed by said self processor,~~ out from said a second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from ~~said-store instructions~~ as executed by either said self-processor or said other processor into ~~said-load instructions~~ as executed by said self-processor.

81. (Currently Amended) The semiconductor integrated circuit as claimed in claim 79, wherein said one kind of said dependence is a write after read dependence, ~~and~~

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~ana~~ said address of said store instruction into ~~ana~~ said entry number, and said detector stores ~~ana~~ said instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if said a particular load instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~ana~~ a load address of said particular load instruction into ~~ana~~ a second entry number, and said detector reads ~~ana stored~~ instruction execution information, ~~whether or not said store instruction has been executed by said self processor,~~ out from said a second entry designated by said second entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after read dependence from ~~said-load instructions~~ as executed by either said self-processor or said other processor into ~~said-store instructions~~ as executed by said self-processor.

82. (Currently Amended) The semiconductor integrated circuit as claimed in claim 79, wherein said one kind of said dependence is an write after write dependence, ~~and~~

wherein if said a particular store instruction has been executed by said other processor, then said address converter is adopted to convert ~~ana~~ a store address of said store instruction into ~~ana~~ a second entry number, and said detector reads ~~ana stored~~ instruction execution information, ~~whether or not said store instruction has been executed by said self processor,~~

out from ~~said a second~~ entry designated by said second entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said store instruction into ~~an~~said entry number, and said detector reads ~~an a second stored~~ instruction execution information, ~~whether or not said store instruction has been executed by said self-processor,~~ out from said entry designated by said entry number of said execution history storing unit, as well as said detector stores ~~an~~said instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said write after write dependence from ~~said-store instructions~~ as executed by either said self-processor or said other processor to ~~said-store instructions~~ as executed by said self-processor.

83. (Currently Amended) The semiconductor integrated circuit as claimed in claim 79, wherein said one kind of said dependence is a read after write dependence, a write after read dependence and an write after write dependence, and

wherein if ~~said a particular~~ load instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~an a load~~ address of said particular load instruction into ~~an a second~~ entry number, and said detector reads ~~an a second~~ instruction execution information, ~~whether or not said store instruction has been executed by said self-processor,~~ from ~~said a second~~ entry designated by said second entry number of said execution history storing unit,

wherein if ~~said a particular~~ store instruction has been executed by either said self-processor or said other processor, then said address converter is adopted to convert ~~an a store~~ address of said particular store instruction into ~~an a third~~ entry number, and said detector reads ~~an a third~~ instruction execution information, ~~whether or not said load instruction has been executed by said self-processor,~~ from ~~said a third~~ entry designated by said third entry number of said execution history storing unit,

wherein if said load instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said load instruction into ~~an~~said

entry number, and said detector stores ~~an~~said instruction execution information, that said load instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit, and

wherein if said store instruction has been executed by said self-processor, then said address converter is adopted to convert ~~an~~said address of said store instruction into ~~an~~said entry number, and said detector stores ~~an~~said instruction execution information, that said store instruction has been executed by said self-processor, into said entry designated by said entry number of said execution history storing unit,

whereby said detector detects a possibility of presence of said read after write dependence from ~~said~~-store instructions as executed by either said self-processor or said other processor into ~~said~~-load instructions as executed by said self-processor, and also detects a possibility of presence of said write after read dependence from ~~said~~-load instructions as executed by either said self-processor or said other processor into ~~said~~-store instructions as executed by said self-processor as well as detects a possibility of presence of said write after write dependence from ~~said~~-store instructions as executed by either said self-processor or said other processor into ~~said~~-store instructions as executed by said self-processor.

84. (Currently Amended) The semiconductor integrated circuit as claimed in claim ~~74~~76, wherein said address converter is adopted to select plural bits of said address inputted and output said plural bits as indicating said entry number.

85. (Original) The semiconductor integrated circuit as claimed in claim 84, wherein said address converter is adopted to take an exclusive-OR of said selected plural bits and output a value of said exclusive-OR as indicating said entry number.